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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,227

09/18/2003

Jae Hak Yee

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7012

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09/16/2004

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EXAMINER

ROSE, KIESHA L

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/667,227

**Applicant(s)**

YEE ET AL.

**Examiner**

Kiesha L. Rose

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/14/04, 1/16/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

This Office Action is in response to the filing of the application.

### *Drawings*

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

Fig. 11, # 31

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 32-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Yagi et al. (U.S. Patent 6,201,292).

Yagi discloses a semiconductor device (Figs. 7 and 12) that contain a flat paddle (24) having an upper surface and that is partially etched which extends about the periphery, a plurality of leads (22) arranged adjacent to the paddle, at least some of the leads each having a lower surface and a lead lock comprising at least one disk shaped protrusion (the circle shaped element in Fig. 12), a semiconductor chip (27) having a lower surface and mounted on paddle by a thermally conducting adhesive (26), conductive wires (28) each electrically connecting respective ones of the leads to the chip, a resin encapsulant (29) defining the bottom surface and at least partially encapsulating the chip, lead lock of the leads and the conductive wires wherein a portion of the lower surface of each of the leads is exposed at the bottom of the encapsulant, a plating layer applied to the lower surface of the leads (bond pad(22b)), a plurality of solder balls (30) being attached to the lower surface of the leads and serving as an external input/output terminal.

Claims 37 and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Okumura et al. (U.S. Patent 5,942,794).

Okumura discloses a semiconductor device (Fig. 11) that contains a flat paddle (102) having an upper surface and that is partially etched which extends about the periphery, a plurality of leads (104) arranged adjacent to the paddle, at least some of the leads each having a lower surface and a lead lock comprising inclined sidewalls having an increased width defined therebetween in an upward direction from the lower surface, a semiconductor chip (103) having a lower surface and mounted on paddle, conductive wires (105) each electrically connecting respective ones of the leads to the chip and a resin encapsulant (106) defining the bottom surface and at least partially encapsulating the chip, lead lock of the leads and the conductive wires wherein a portion of the lower surface of each of the leads is exposed at the bottom of the encapsulant.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura in view of Yagi.

Okumura discloses all the limitations except for a plurality of solder balls and adhesive on the paddle and chip. Whereas Yagi discloses a paddle (24), a plurality of leads (22) arranged adjacent to the paddle, a semiconductor chip (27) having a lower surface and mounted on paddle by a thermally conducting adhesive (26), conductive wires (28) each electrically connecting respective ones of the leads to the chip, a resin encapsulant (29) defining the bottom surface and at least partially encapsulating the chip, lead lock of the leads and the conductive wires wherein a portion of the lower surface of each of the leads is exposed at the bottom of the encapsulant, a plating layer applied to the lower surface of the leads (bond pad(22b)) and a plurality of solder balls (30) being attached to the lower surface of the leads and serving as an external input/output terminal. The solder balls were formed on the bottom of the leads for electrical connection to the outer circuit substrate. (Column 5, lines 13-16) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Okumura by incorporating solder balls to the end of the leads to form electrical connection to the outer circuit substrate as taught by Yagi.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 27-31 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4 of U.S. Patent No. 6,448,633. Although the conflicting claims are not identical, they are not patentably distinct from each other because they set forth subject matter which is obvious over each other and add dependent limitations to the independent claims and the Yee '633 reference discloses the paddle, plurality of leads, chip, conductive wires, resin encapsulant, solder balls and adhesive which are the same limitations that are disclosed in the pending application.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on M-F 8:30-6:00 off 2nd Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
KLR

  
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SUPERVISORY PATENT EXAMINER  
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